CLAIMS

1.   A microarray comprising:

a substrate;

5   a number of features comprising probe molecules, each feature located at a different position on a surface of the substrate; and

at least one reference pattern that comprises a number of pattern blocks, each pattern block comprising an arrangement of one or more nearest-neighbor, positive-control features around a central feature, a comparison of computed positions for

10   reference-pattern features to reference-pattern feature positions, following scanning of the microarray, indicating a feature extractability problem.

2.   The microarray of claim 1 wherein the reference pattern includes a pattern block for each possible arrangement of one or more nearest-neighbor positive-control

15   features around a central, positive-control feature and for each possible arrangement of one or more nearest-neighbor, positive-control features around a central, negative-control feature.

3.   The microarray of claim 1 wherein the reference pattern comprises a two-

20   dimensional array of pattern blocks.

4.   The microarray of claim 1 wherein features are arranged in a hexagonal packing arrangement on the surface of the substrate, each interior feature having 4 nearest-neighbor features.

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5.   The microarray claim 1 wherein the reference pattern is positioned at one or more corners of the microarray.

6.   The microarry of claim 1 wherein the reference pattern is positioned at one or

30   more opposing diagonal corners of the microarray.

7.   A kit comprising a microarray of claim 1.

8.   The kit according to claim 7 wherein the microarray comprises reference-pattern features, each reference-pattern feature further comprising a set of different probe molecules that can bind to respective targets within a biological sample.

9.   A kit comprising:

a microarray of claim 1; and

a set of reference targets that bind to the features of the pattern blocks when the microarray is exposed to the reference targets so that the features of the pattern blocks bound by the reference targets represent multiple different arrangements of one or more nearest neighbor positive control features around a central feature.

10.   The kit according to claim 9 wherein the features of the pattern blocks bound by the reference targets represent all of the different arrangements of one or more nearest neighbors around a central feature.

11.   The kit according to claim 9 further comprising instructions to expose the array to the reference targets.

12.   A method for evaluating a microarray containing features at feature positions for feature extractability, the method comprising:

reading the microarray to produce a digital image of the microarray;

computing feature positions of one or more reference patterns within the microarray from the digital image;

comparing the computed reference-pattern-feature positions with reference-pattern-feature positions; and

when the computed reference-pattern-feature positions differ from the reference-pattern-feature positions by more than a threshold amount, determining the microarray to have a feature extractability problem.

13.   The method of claim 12 wherein the reference pattern comprises at least one pattern block for each possible arrangement of one or more nearest-neighbor positive-control features around a central, positive-control feature.

5   14.   The method of claim 12 wherein the reference pattern comprises at least one pattern block for each possible arrangement of one or more nearest-neighbor, positive-control features around a central, negative-control feature.

15.   The method of claim 12 wherein the reference pattern comprises at least one 10   pattern block for each possible arrangement of one or more nearest-neighbor positive-control features around a central, positive-control feature, and for each possible arrangement of one or more nearest-neighbor, positive-control features around a central, negative-control feature.

15   16.   The method of claim 12 wherein comparing the computed reference-pattern-feature positions with reference-pattern-feature positions further includes visually comparing indications of the computed feature positions with images of the reference-pattern features.

20   17.   The method of claim 12 wherein comparing the computed reference-pattern-feature positions with reference-pattern-feature positions further includes comparing, by a computer program, each computed feature position with the reference-pattern-feature positions.

25   18.   The method of claim 12, wherein the method for evaluating a microarray for feature extractability can be carried out prior to full, feature extraction in order to determine whether or not full, feature extraction method can be conducted on the microarray.

30   19.   The method of claim 12 further comprising:
            fabricating a first batch of arrays;

reading a microarray selected from the first batch of arrays, to compute feature positions of one or more reference patterns, and comparing the computed reference-pattern-feature positions with reference-pattern-feature positions to determine whether or not the microarray has a feature extractability problem; and

5   rejecting other arrays of the batch when a feature extractability problem is determined.

20.   The method according to claim 19 further comprising manufacturing a second batch of arrays and testing the second batch of arrays when the first batch of arrays is

10   rejected..

21.   A method according to claim 19 further comprising, when no feature extractability problem is determined, shipping other arrays of the batch to one or more remote locations along with an indication that features can be extracted using

15   one or more referenced feature extraction methods.